

REQUEST FOR RECONSIDERATION

The Office rejected the original claims as obvious in view of English machine translations of JP 2000-338306 (JP '306) and JP 06-157791 (JP '791). Applicants traverse the rejection on the grounds that the Office has not established a *prima facie* case of obviousness in view of the prior art relied upon by the Office.

It is a requirement of any rejection under 35 U.S.C. §103 made in view of a combination of prior art references that the cited prior art disclose all of the claim limitations.

Applicants submit that JP 2000-338306 (JP '306) does not disclose or suggest a metal oxide containing layer (i.e. a high refractive index layer) that is impregnated with an adhesive of an adhesive layer.

An adhesive layer in JP '306 is formed on a metal oxide containing layer (Abstract). The metal oxide containing layer comprises conductive-metallic-oxide particles and an acrylic resin as an essential component (see Claim 2 and paragraph [0009] of JP '306). In such a metal oxide containing layer, the resin is closely present among the particles. Accordingly, voids to be impregnated with the adhesive of the adhesive layer are not present among the particles. In other words, the surface of the metal oxide containing layer is in a closed state by the presence of the resin, the impregnation can not occur even if the metal oxide containing layer is in contact with the adhesive layer.

Further, JP '306 does not disclose or suggest that an adhesive which constitutes an adhesive layer contains a cellulose resin.

JP 06-157791 (JP '791) discloses that a coating composition comprising an ionizing radiation curing type resin and a cellulose resin is applied onto a triacetyl cellulose film to form a hard coat layer. Needless to say, the triacetyl cellulose film cannot be impregnated with the radiation curing type resin and the cellulose resin in the hard coat layer.

Further, even if the hard coat layer in JP '791 is used as the adhesive layer in JP '306, the metal oxide containing layer in JP '306 cannot be impregnated with the radiation curing type resin and the cellulose resin in the hard coat layer in JP '791, because voids to be impregnated with the radiation curing type resin and the cellulose resin are not present on the surface of the metal oxide containing layer as described above.

On the other hand, the invention as claimed in the independent Claims 1 and 9 of the present application is directed to an antireflection film for transfer wherein an adhesive which constitutes an adhesive layer contains a curable component and a cellulose resin, and a high refractive index layer is impregnated with a portion of the adhesive.

Applicants therefore submit that the subject matter of independent Claims 1 and 9 is not obvious over the combination of JP '306 and JP '791.

Further, the excellent effect of the present invention is described in the present specification on page 21, line 17 to page 22, line 23. That is to say, the high refractive index layer is impregnated with the adhesive of the adhesive layer so that the curable monomer component of the adhesive cures when irradiated with radiation, and therefore, excellent adhesion between the high refractive index layer and the adhesive layer is achieved. Further, when the cellulose resin is present in the adhesive, since the cellulose resin with its polar groups has high affinity to the metal oxide fine particles, the curable monomer component of the adhesive is also distributed in the proximity of the metal oxide fine particles. This allows the curing reaction of the curable monomer component to take place as effectively in the proximity of the metal oxide fine particles as elsewhere. As a result, the more excellent adhesion between the high refractive index layer and the adhesive layer is achieved, in other words, the adhesion in the interface between the high refractive index layer and the adhesive layer is improved.

Applicants further traverse the rejection on the grounds that those of ordinary skill in the art would have no motivation to combine the JP '306 and JP '791 publications and thereby arrive at the presently claimed invention. For example, the Office asserts that JP '306 discloses a transfer material having one or more layers in common with the antireflection films of the present claims. On the one hand the Office admits that JP '306 discloses that "the resulting antireflection layer formed by utilizing this transfer material unfortunately has a lower solvent resistance than those antireflection layers formed by sputtering" (see lines 6-8 on page 3 of the Office Action of July 20, 2006). On the other hand the Office asserts that it would be obvious to combine the teachings of JP '791 with JP '306 even though the JP '791 compositions contain a solvent.

Applicants draw the Office's attention to the Abstract of JP '791 which discloses the following:

CONSTITUTION: First, a coating composition comprising (A) 100 pts. wt. ionizing radiation curing type resin (preferably mixture of polyester acrylate and polyurethane acrylate) applied to a triacetyl cellulose film. The film is irradiated with ionizing radiation and the coating film is cured to give the objective product. Toluene is preferable as a solvent for the coating compound composition. In the case of using an ultraviolet curing resin as the component A, the coating compound composition is preferably mixed with a fluorine-based or silicone-based leveling agent.

JP '791 discloses that the prior art compositions are applied as toluene solutions (see the quote from the Abstract of JP '791 above and Example 1 (i.e., paragraph no. [0020]) of JP '791). Applicants submit that it would make absolutely no sense to use the solvent based compositions of JP '791 in the transfer materials of JP '306 in view of the fact that JP '306 explicitly identifies poor solvent resistance as a weakness.

How can there be any expectation of success or motivation to combine a transfer material which has poor solvent resistance with compositions that must contain a solvent?

Thus, Applicants submit that the Office further failed to sustain its burden in establishing a *prima facie* case of obviousness by failing to consider the solvent resistance problems of the JP '306 publication in view of the fact that the JP '791 compositions contain a solvent. Applicants submit that the rejection is not supportable and should be withdrawn.

With respect to the subject matter of the dependent claims, the Office states:

With respect to those variables not either expressly or inherently disclosed, such as the presence of such cellulose resin esters as cellulose acetate butyrate and/or cellulose acetate propionate, as well as the specific range of proportions of the various ingredients, these are each believed to be obvious selections to one of ordinary skill in the cellulose resin adhesive based art, in the absence of unexpected results. (See the sentence bridging pages 3 and 4 of the July 20, 2006 Office Action).

Applicants submit that obviousness is not predicated on what is believed by the Examiner. Obviousness must be based upon evidence. The Office cited to no evidence for the assertion that the subject matter of the present dependent claims would be obvious. Instead, the Office made a wholly unsubstantiated conclusion with respect to the patentability of the subject matter of the dependent claims. The Office thus failed to establish a *prima facie* case of obviousness for the subject matter of the dependent claims. Applicants request withdrawal of the rejections. Remarks traversing the rejection of particular dependent claims are provided below.

Dependent Claims 2 and 10 state that the cellulose resin includes an ester bond. Neither of the JP '306 and the JP '791 publications disclose or suggest that a cellulose resin having an ester bond is preferred or may otherwise be used. Applicants submit that because neither the '306 nor JP '791 publications disclose a cellulose resin having an ester bond, the prior art relied upon by the Office cannot render the claimed subject matter obvious.

Applicants note that nitrocellulose is readily recognized by those of ordinary skill in the art as a cellulosic resin that does not contain an ester bond. Applicants attach herewith a

technical description of nitrocellulose (aka cellulose nitrate) obtained from www.sigmaaldrich.com. As is evident from the product description for nitrocellulose the molecule does not have any ester groups. Applicants also attached herewith a description of an ester bond obtained from "Organic Chemistry, 2nd. Ed.," John Wiley & Sons, 1980 (pg. 69) which shows that an ester includes a carbonyl moiety (e.g., a carbon atom doubly bonded to an oxygen atom represented by C=O), see section "2.13C – Esters" of the attachment.

Dependent Claims 3-4 and 11-12 likewise require a cellulose resin including an ester bond. Dependent Claims 3 and 11 state that the ester is one of acetate, butyrate and propionate whereas Claims 4 and 12 state that the cellulose resin is cellulose acetate butyrate and/or cellulose acetate propionate. For the same reasons discussed above regarding the patentability of Claims 2 and 10, Applicants submit that dependent Claims 3-4 and 11-12 are patentable over the prior art relied upon by the Office.

Because the Office has not identified any disclosure in the JP '306 or JP '791 publications that disclose or suggest any one of the ester bond-containing cellulose resins of Claims 3-4 and 11-12, the Office has not met its burden in setting forth a *prima facie* case of obviousness. Applicants thus submit that the subject matter of Claims 3-4 and 11-12 is further patentable over the prior art of record and respectfully request withdrawal of the rejections.

Further with regard to the presence of an ester bond-containing cellulose resin in the claimed invention, Applicants have shown in the examples of the specification that significantly improved performance properties are obtained when the ester bond-containing cellulose resin recited in one or more of the claims is present in an antireflection film. Applicants draw the Office's attention to Examples 1 and 2 and Comparative Example 1 on page 27, line 1 through page 30, line 8. The only difference between Comparative Example 1 and Example 1 is the fact that the coating liquid for the adhesive layer of Comparative

Example 1 “did not contain cellulose acetate butyrate” (see page 30, line 4). The comparative evaluation shows the superiority of the claimed invention (the Inventive and Comparative examples are described beginning at page 33 beginning at line 6).

Thus, not only did the Office fail to establish a *prima facie* case of obviousness with respect to the claimed antireflection film, Applicants have shown the superiority of the claimed invention (i.e., an antireflection film containing a cellulose resin having an ester bond) in comparison to a generic antireflection film.

Dependent Claims 6 and 14 each state that the antireflection film contains metal oxide fine particles which are present in the high refractive index layer. The metal oxide fine particles are surface-treated with a compound having a crosslinkable functional group. Applicants submit that the prior art relied upon by the Office does not disclose this feature of the presently claimed invention. As set out above for some of the other dependent claims, Applicants submit that the subject matter of dependent Claims 6 and 14 cannot be obvious in view of the prior art relied upon by the Office because the cited prior art does not disclose metal oxide particles treated with a compound such as that recited in dependent Claims 6 and 14. The relevance of this feature of the claimed invention is described on page 17 of the specification:

Upon irradiation with ultraviolet rays or other active energy rays after the antireflection film for transfer has been transferred to the article, the crosslinkable functional groups imparted to the surface of the metal fine particles through the surface treatment form crosslinks with the active energy ray-curable component, in particular, the monomer component, in the adhesive with which the high refractive index layer (2b) has been impregnated. Not only does this increase the film strength and adhesion of the high refractive index layer (2b), but it also improves the solvent resistance of the high refractive index layer (2b). (See the first full paragraph on page 17 of the specification).

The Office objected to the claims on the ground of indefiniteness because the Office asserts that the claims include relative terms, e.g., “high” and “low.” Applicants traverse the

rejection in view of the description of these terms provided in the present specification. For example, the relative definition of high and low refractive index is expressly disclosed on page 10, lines 2-5 of the specification, reproduced below for convenience:

A high refractive index and a low refractive index are relative and are determined by comparing the refractive index of the high refractive index layer with that of the low refractive index layer.

Thus, no numerical limitation needs to be placed upon the refractive indices of any of the layers. The only requirement is that the high refractive index layer have a higher refractive index than a low refractive index layer. Applicants submit that this definition is not indefinite and in fact is clearly described in the specification as originally filed. Applicants request the withdrawal of the rejection under 35 U.S.C. §112, second paragraph.

The Office also objected to the terms “curable component”, “active energy ray-curable”, and “active energy rays” appearing in the present claims. Applicants submit that each of these terms is clearly defined in the specification as originally filed and includes examples of what materials may fall within such a description. For example, “curable component” is described on page 19, line 16 and page 21, line 8. Additionally, the amendment to the claims for clarity further obviates the Office’s objections on these grounds. Applicants therefore submit that the terms are definite when read in light of the specification and respectfully request withdrawal of the rejections.

INFORMATION DISCLOSURE STATEMENT

Applicants submit herewith an Information Disclosure Statement including JP7-225302. Applicants respectfully request the Office provide a signed, dated and initialed copy of the PTO-1449 submitted concurrently herewith to acknowledge consideration of this reference during the examination of the present application.

For the reasons discussed above, Applicants submit that all now-pending claims are in condition for allowance and respectfully request early notification of the same.

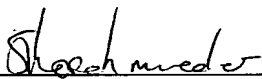
Respectfully submitted,

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ORGANIC CHEMISTRY

Second Edition

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Library of Congress Cataloging in Publication Data:

Solomons, T W Graham.
Organic chemistry.

Includes index.

1. Chemistry, Organic. I. Title.

[DNLM: 1. Biochemistry. 2. Chemistry, Organic.
QD251.2 S689o]

QD251.2.S66 1980 547 79-28839

ISBN 0-471-04213-7

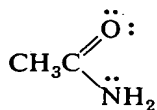
Printed in the United States of America

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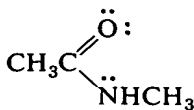
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2.13B Amides

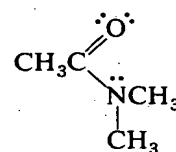
Amides have the general formulas RCONH_2 , RCONHR' , or $\text{RCONR}'\text{R}''$. Specific examples are the following:



Acetamide



N-Methylacetamide
(an *N*-substituted amide)



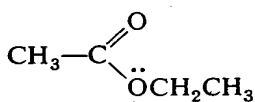
N,N-Dimethylacetamide
(an *N,N*-disubstituted amide)

2.13C Esters

Esters have the general formula RCOOR' .



General formula for an ester



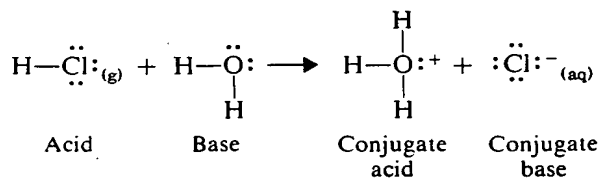
or $\text{CH}_3\text{COOCH}_2\text{CH}_3$ or $\text{CH}_3\text{CO}_2\text{CH}_2\text{CH}_3$
A specific ester called ethyl acetate

2.14 ACID-BASE REACTIONS: BRØNSTED-LOWRY ACIDS AND BASES

Involved at some point in the vast majority of reactions that occur with organic compounds are *acid-base reactions*. For this reason, we need to review some of the essential principles of acid-base chemistry.

2.14A Strong Acids and Bases

According to the Brønsted-Lowry theory an *acid* is a substance that can *donate a proton*, and a *base* is a substance that can *accept a proton*. Let us consider, as an example of this concept, the reaction that occurs when gaseous hydrogen chloride dissolves in water.



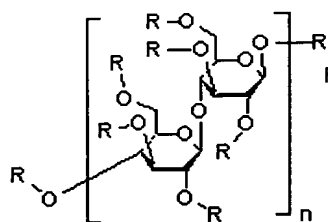
Hydrogen chloride, a very strong acid, transfers its proton to water. Water acts as a base and accepts the proton. The products that result from this reaction are the hydronium ion (H_3O^+ , the conjugate acid of water) and the chloride ion (Cl^- , the

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 Product Name or No. **547964 Cellulose nitrate**

Sigma-Aldrich extent of labeling: 12 wt. % N, viscosity 20 cP



Synonym	Nitrocellulose
Molecular Formula	$C_{24}H_{36}N_8O_{38}$
Molecular Weight	1044.57
CAS Number	9004-70-0
MDL number	MFCD00081525

[Expand/Collapse All](#)**Price and Availability**[Click For Pricing and Availability](#)**Descriptions**

Features and Benefits	Forms clear, tough, durable films. Dry powder is easily ignited by sparks.
Packaging	1 kg in poly btl 250 g in amber poly
Warning	Dangerous when dry. 2-propanol content must be maintained above 25 wt.% for storage.
Application	Coatings for metal, paper, textiles and wood, especially furniture. Component of adhesive and ink formulations.

Properties

composition	2-Propanol, 30% (wetted with)
extent of labeling	12 wt. % N 2.26 mol per mol cellulose (D.S.)
ASTM D 301-56, D 1343-56	50-100 sec., 12.2 wt. % in ethanol-toluene-ethyl acetate, falling ball(lit.)
viscosity	20 cP
bp	83 °C(lit.)
transition temp	softening point 155-220 °C (Parr)
density	1.23 g/mL at 25 °C(lit.)

References

Merck	Merck 13,8101
reference	Structure Index 1, 500:B:6

Safety

Hazard Codes	<u>F,Xi</u>
Risk Statements	<u>1-11-36/38</u>
RIDADR	UN 2556 4.1/PG 2
WGK Germany	1
RTECS	QW0970000

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